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APPLICATION NUMBER 08/523,886	FILING DATE 01/30/96	FIRST NAMED APPLICANT KAMIYAMA	ATTORNEY DOCKET NO. N 39-5488-28
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33M1/1114  
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EXAMINER FIELDS, D
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ART UNIT 3305	PAPER NUMBER 4
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DATE MAILED: 11/14/96

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

**OFFICE ACTION SUMMARY**

☒ Responsive to communication(s) filed on 1/30/96

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

**Disposition of Claims**

☒ Claim(s) 1-28 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-28 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

**Application Papers**

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

☒ Notice of Reference Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 1

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

- SEE OFFICE ACTION ON THE FOLLOWING PAGES -

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## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. Claims 1, 14, 24, and 27 are incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2173.05(I). The omitted structural cooperative relationships are: "scanning a cross section of an examining human body implanted bubbles" in lines 3-4 of claim 1, lines 25-26 of claim 14, lines 5-6 of claim 24, and lines 23-24 of claim 27.
3. It is unclear to the examiner as to what is meant by "nth obtained after ..." in claim 8 and 19.
4. Claims 9 and 20 recite the limitation "scanning lines" in line 1 of claim 9 and line 12 of claim 20. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7, 10, 11, 13-18, and 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monaghan '683. Regarding claims 1, 4-6, 11, 14-17, 22 and 24, Monaghan discloses an apparatus and method wherein the ultrasonic energy may be directed sequentially along scan lines and the frequency dependent characteristic of the ultrasonic energy during the first and second time periods is determined a plurality of times for each scan line (see col. 3, lines 15-20), a center frequency and the shape of the spectrum varied to obtain optimum imaging as needed (see col. 4, lines 12-14), a display **18** that displays an image of the tissue being examined (see col. 4, lines 18-19), and a transducer which may be operated to sequentially insonate the tissue with ultrasonic energy at first and second frequencies (see col. 3, lines 9-11).

Regarding claims 2 and 25, Monaghan discloses wherein said power is sound pressure comprises ultrasonic energy (see col. 3, line 11).

Regarding claims 3, 7, 13, 18 and 26, Monaghan discloses a piezoelectric element that may be driven over a band or spectrum of frequencies (see col. 4, lines 10-11) and the ultrasonic energy is determined a plurality of times for each scan line (see col. 3, line 18-20).

Regarding claims 10, 27, and 28, Monaghan discloses that the transducer is capable of developing a baseline reflection signal and a post introduction reflection signal representative of ultrasonic energy reflected by the tissue prior to and after introduction of the contrast agent into the tissue, respectively.

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However, Monaghan does not disclose changing means for changing power of said ultrasound from first power to second power stronger than said first power. The second power would have to be higher to compensate for tissue attenuated upon reflection. It would be obvious to one of ordinary skill in the art at the time the invention was made to modify an ultrasound an apparatus having scanning means, image data obtaining means, displaying means, and changing means since such a modification would provide for a clearer image when ultrasonically examining tissue using an ultrasound contrast agent.

***Allowable Subject Matter***

7. Claims 8, 9, 12, 19, and 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick Fields whose telephone number is (703) 305-6933. The examiner can normally be reached on Monday - Friday from 7:00a.m. to 4:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marvin Lateef, can be reached at (703) 308-3256. The fax phone number for this Art Unit is (703) 308-0131.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0858.



MARVIN M. LATEEF  
SUPERVISORY PATENT EXAMINER  
GROUP 3300

df

November 7, 1996